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News 5 FEB 05 German (DE) application and patent publication number format changes

News 6 MAR 03 MEDLINE and MEDLINE reloaded

News 7 MAR 03 MEDLINE file segment of TOXENTER reloaded

News 8 MAR 03 FRANCEPAT now available on STN

News 9 MAR 29 Pharmaceutical Substances (PS) now available on STN

News 10 MAR 29 WIFIV now available on STN

News 11 MAR 29 New monthly current-awareness alert (SDI) frequency in RAPRA

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News 13 APR 26 IEPAT/IFUDB/IFCDB: New super search and display field available

News 14 APR 26 LITALENT now available on STN

News 15 APR 27 NLDE: New search and display fields available

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FILE COVERS 1907 - 10 Jun 2004 VOL 140 ISS 24

FILE LAST UPDATED: 9 Jun 2004 (20040609/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s ((poly (w) ethylene (w) glycol) or peg) (p) (fumar? or phthal?)

=> 5 ((poly (w) ethylene (w) glycol) or peg) (p) (fumar? or phthal?)

=> 609062 POLY

=> 479722 ETHYLENE

=> 313319 GLYCOL

=> 28740 PEG

=> 37373 FUMAR?

=> 165910 PHTHAL?

L1 531 ((POLY (W) ETHYLENE (W) GLYCOL) OR PEG) (P) (FUMAR? OR PH

=> s 11 (p) ((cross (w) link?) or crosslink)

=> 436601 CROSS

=> 390314 LINK2

=> 13431 CROSSLINK

=> 15 L1 (p) ((CROSS (W) LINK?) OR CROSSLINK)

=> d 12 bib ab 1-15

ANSWER 1 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:99543 CAPLUS

TI FBG and DBFG modified porcine hemoglobin and their oxygen-carrying capacity

AU Hong, Min; Cai, Jir; Meng, Wenfang; Li, Shiyun; Yuan, Zhongyi

CS Biological Sciences, the Chinese Academy of Sciences, Shanghai; 2004

PEOP. Rep. China
Shenggu Huaxue Yu Shengwu Wuli Xuebao (2002), 34(4), 452-456
CODEN: SHRAU; ISSN: 0522-3879
PB Shanghai Xueke Jishu Chubanshe
DT Chinese
LA Journal

AB Modifications of proteins with polyethylene glycol (***PEG***) have been proven to enlarge mol. size of proteins, to prolong their retention on time in the circulation as well as blunt immune or allergic reactions. If ***cross*** - ***linked*** with small mol. modifiers turns out to be more stable and to have better oxygen carrying capacity. In the present study, four derivs. of ***PEG*** with different activation groups, and several PEGs with different mol. wts. were covalently bound to porcine Hb(pbib). ***PEG*** -pbics exhibited a variety of differences in their properties on the mol. wts. of the used PEGs, the amts. of bound PEGs and the presence or absence of allosteric cofactors. The optimal modification conditions for bis (3, 5-dibromosalicyl) ***fumarate***, (DBBF) as well as the phys. features and oxygen carrying capacity of DBBF-modified Hb were evaluated. Furthermore, both ***PEG*** and DBBF were used simultaneously to modify Hb. The results indicate that the pbics modified with ***PEG*** and DBBF had more stable tetrameric conformations with a mol. wt. of 107 kD. Their oxygen half-satn. pressure (P50) is around 3. 33 kPa which approximates the physiol. P50 of human red blood cells.

ANSWER 2 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
1401117316 CAPLUS

TI Thermally crosslinked oligo(polyethylene glycol fumarate) hydrogels support osteogenic differentiation of encapsulated marrow stromal cells in vitro

AU Temenoff, Johanna S.; Park, Hansoo; Jabbari, Esmaeil; Conway, Daniel E.; Sheffield, Tiffany L.; Ambrose, Catherine G.; Mikos, Antonios G.
CS Department of Biengineering, Rice University, Houston, TX, 77251, USA
SO Biomacromolecules (2004), 5(1), 5-10
CODEN: BOAPE; ISSN: 1525-7797
PB American Chemical Society

DT Journal

LA English
AB A novel polymer, oligo(polyethylene glycol ***fumarate***) (OPF), crosslinked with a thermal radical initiation system has recently been developed in our lab. as an injectable, biodegradable cell carrier for regeneration of orthopedic tissues. The crosslinking, swelling, and degradative properties of hydrogels prep'd. from OPF with ***poly*** (***ethylene*** - ***glycol*** - ***cross*** - ***linked***) of two different chain lengths were assessed. The two OPF types had similar gelation onset times (aprx. 3.6 min) but, when ***cross*** - ***linked*** for 8 min at 37 $^{\circ}$ C, exhibited significantly different swelling characteristics (fold swelling: 17.5 \pm 0.2 vs 13.4 \pm 0.4). Rat marrow stromal cells (MSCs) were then directly combined with the hydrogel precursors and encapsulated in a model OPF formulation at aprx. 14 million cells/ml, cultured *in vitro* in the presence of osteogenic supplements (dexamethasone), and monitored over 28 days via histol. MSC differentiation in these samples (6 mm diam. times, 0.5 mm thick before swelling), as dect., by Von Kossa staining for calcified matrix, was apparent by day 21. At day 28, mineralized matrix could be seen throughout the samples, many microns away from the cells. These expts. strongly support the usefulness of thermally crosslinked OPF

RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

1.2 ANSWER 3 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:806544 CAPLUS

DN 139112327
TI in vitro cytotoxicity of redox radical initiators for crosslinking of oligo[poly(ethylene glycol) fumarate] macromers
AU Temenoff, Johanna S.; Shin, Heungsoo; Conway, Daniel E.; Engel, Paul S.; Mikos, Antonios G.

CS Department of Bioengineering and Department of Chemistry, Rice University, Houston, TX, 77251, USA
SO Biomacromolecules (2003), 4(6), 1605-1613
CODEN: BOMA6; ISSN: 1525-7797
PB American Chemical Society

DT Journal

LA English

AB A novel hydrogel system based on oligo(***poly*** (***ethylene*** - ***glycol***) ***fumarate***) (OPF) is currently being investigated as an injectable carrier for marrow stromal cells (MSCs) for orthopedic tissue engineering applications. This hydrogel is ***cross*** - ***linked*** - using the redox radical initiators ammonium persulfate (APS) and ascorbic acid (AA). In this study, two different persulfate agents derived from ascorbic acid (AA) sodium ascorbate (Asc), and magnesium ascorbate-2-phosphate (Asc-2), and their combinations were examined, to det. the relationship between pH, exposure time, and cytotoxicity for rat MSCs. In adchn., gelation times for specific combinations were detd. using rheometry. pH and cell viability data after 2 h for combinations ranging from 10 to 500 mM in each reagent showed that there was a smaller pH change and a corresponding higher viability at lower concns., regardless of the reagents used. At 10 mM, there was less than a 1.5 unit drop in pH and greater than 90% viability for all initiator combinations examined. However, MSC viability was significantly reduced with concns. of 100 mM and higher of the initiator combinations. At 100 mM, exposure to NaPS/Asc-2 resulted in significantly more live cells than exposure to APS/AA or NaPS/Asc, but at this concn., NaPS/Asc-2 exhibited significantly longer OPF gelation onset times than APS/AA. At all combination concns., exposure time (10 min. vs 2 h) did not significantly affect MSC viability. These data indicate that final pH and/or radical formation have a large impact on MSC viability and that multiple, intertwined testing procedures are required for identification of appropriate initiators for cell encapsulation applications.

RE.CNT 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

1.2 ANSWER 4 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:65303C CAPLUS

DN 1391185742
TI Synthesis and characterization of biodegradable cationic poly(propylene fumarate-o-ethylene glycol) copolymer hydrogels modified with aspartame for enhanced cell adhesion
IN Mikos, Antonios G.; Tanahashi, Kazuhiro
PA William Marsh Rice University, USA
SO U.S. Pat. Appl. Publ., 17 pp.
CODEN: USXCO

linked, the leachable products from the OPF hydrogels had minimal adverse effects on the viability of MSCs (percentage of live cells was higher than 90% regardless of hydrogel types). The results suggest that, after optimization of crosslinking parameters, OPF-based hydrogels hold promise as novel injectable scaffolds or cell carriers in tissue engineering.

RE. QNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 6 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:7393451 CAPLUS
DN 138:36325
TI Preparation of biodegradable poly[(dimethylidichlorosilane)-(fumaric acid/sebacic acid)]-PFS block copolymer
AU Najati, Farrood; Sarboluki, Mohammad N.
CS Faculty of Science, Department of Chemistry, Tehran University, Tehran, 14155-645, Iran
SO Polymer (2002), 43(23), 6363-6368
CODEN: POLMAG; ISSN: 0032-3861
PB Elsevier Science Ltd.
LA English
AB A low mol. wt. linear unsatd. precursor, poly[(dimethylidichlorosilane)-(fumaric acid/sebacic acid)], PFS with active dimethylidichlorosilane-{-***fumaric*** acid/sebacic acid} terminal groups, was synthesized by polycondensation of ***fumaric*** acid and sebacic acid with the aid of dimethylidichlorosilane as coupling agent. PFS was used to prep. poly(dimethylidichlorosilane)-(fumaric acid/sebacic acid)-{-***PFS***, P(DFS-co-EG) block copolymer. Each of the compds., PDFS or P(DFS-co-EG), was -***linked*** with a vinyl monomer like methacrylate or styrene. Products thus obtained were studied in terms of mol. wt., common structure, and thermal properties. Hydrolytic degrad. of P(DFS-co-EG) block copolymer in aq. media (pH 7.3, 37.degree.) in a 28-day period is also studied.

RE. QNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 7 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:310128 CAPLUS
DN 137:33970
TI Characterization of the Cross-Linked Structure of Fumarate-Based Biodegradable Polymer Networks
AU Timmer, Mark D.; Jo, Seongpong; Wang, Chuanyue; Ambrose, Catherine G.; Mikos, Antonios G.
CS Department of Bioengineering, Rice University, Houston, TX, 77251-1892, USA
SO Biomacromolecules (2003), 4(3), 552-560
CODEN: BOMAF6; ISSN: 1525-7797
PB American Chemical Society
LA English
AB Currently, oligo[***poly*** (***ethylene*** ***glycol***) ***fumarate***] (OPF) hydrogels are being investigated as an injectable and biodegradable system for tissue engineering applications. In this study, cytotoxicity of each component of the OPF hydrogel formulation and the resulting ***cross*** -***linked*** network was examined. Specifically, OPF synthesized with ***poly*** (***ethylene*** ***glycol***) { ***PEG*** } of different mol. wts. (Mw), the crosslinking agent [***PEG*** -diarylate (***PEG*** -DA), and the redox initiator pair (ammonium perulfate (APS) and ascorbic acid (AA)] were evaluated for cytotoxicity at 2 and 24 h using marrow stromal cells (MSCs) as model cells. The effect of leachable byproducts of OPF hydrogels on cytotoxicity was also investigated. Upon exposure to various concns. of OPF for 2 h, greater than 50% of the MSCs were viable, regardless of OPF mol. wt. or concn. in the media. After 24 h, the MSCs maintained more than 75% viability except for OPF concns. higher than 25% (w/v). When examined, the crosslinking agent, ***PEG*** -DA of higher MW (3400) demonstrated significantly higher viability compared to ***PEG*** -DA with MW 575 at all concns. tested. Considering initiators, when MSCs were exposed to AA and APS, as well as the combination of AA and APS, higher viability was observed, at lower concns. Once -***cross*** -***linked*** with ***fumarate***] (PFF) ***cross*** -***linked*** with

polypropylene ***fumarate*** -diacrylate (PPE-DA) and oligo(***pvcy*** (***ethylene*** ***glycol*** ***fumarate***)
 (OPF) ***cross*** -***linked*** with ***poly*** (***cross*** (***ethylene*** ***glycol*** -diacrylate [***PEG***
 evaluated with this method to det. the macromer and crosslinking agent conversions, the network crosslinking d., and an est. of the mol. wt. between ***cross*** - ***links*** The validity of the method was confirmed by the anal. of the compn. of the un-***cross***
 linked the ***cross*** - ***linked*** polymers with the macromer and crosslinking agent double bond ratio. The results showed that acrylate species had participated more than ***fumarate*** in network formation. Furthermore, the structure of PPE PPE-DA networks was influenced by the amt. of crosslinking agent in the polymer formulation, and the OPF/ ***PEG*** DA network structure was controlled by the no. of repeating ***fumarate*** units in the macromer. This method provides a new means to characterize the macromer structure of ***fumarate***-based networks.

26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD

ANSWER B OF 15 CAPLUS COPYRIGHT 2004 ACS on STN 2002:172392 CAPLUS					
136:23:6890 Biocompatible macromers comprising alternating fumaric acid and poly(acrylene glycol) units					
Jo, Seongborg; Mikos, Antonios G. USA U.S. Pat. Appl. Publ., 25 pp., Cont.-in-part of U.S. 6,306,821. CODEN: USXXCO Patent English					
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
US 2002028189	A1	20020307	US 2001-845570	20010430	
US 6306821	B1	20011023	US 2000-549483	20000414	
CA 2345787	AA	20011111	CA 2001-2345787	20010501	
WO 200105180	AI	20011115	WO 2001-US14910	20010509	
W: JP, KR	CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, IJ, N				
EW: AT, BE, PT, SE, TR	CH, DE, DK, ES, FR, GB, GR, IT, IJ, LU, NL, SE, N				
EP 1294245	A1	20030212	EP 2001-945182	20010509	
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, IJ, LU, NL, SE, N					
US 2002176683	AI	20021128	US 2002-127117	20020422	
US 2000-549483	A2	20000414			
US 2000-203689P	P	20000511			
US 2000-236093P	P	20000928			
US 1999-129579P	P	19990416			
US 1999-146931P	P	19990803			
US 1999-167328P	P	19991124			
US 1999-167388P	P	19991124			
US 2000-549485	A3	20000414			
US 2001-845570	A	20010430			
WO 2001-US14910	W	20010509			
A new oligomer based on alternating					***fumaric***
					acid and

is provided. The oligo(***PEG*** . ***fumarate***) (OPF) may be functionalized by modification with a biocompatible org. group. Further, the OPF may be ***cross*** - ***linked*** - using radical polymer. in the presence of either a chem. or photo initiator. A ***cross*** - ***linked*** - OPF gel has a swelling behavior that is tunable dependent on the mol. wt. of ***PEG*** . A ***cross*** - ***linked*** - macromer, as exemplified by oligo(***PEG*** . ***fumarate***), has unsat. double bonds, for example in the ***fumarate*** groups, along its macromol. chain that allows for the prep. of hydrogels with tailored structure and properties. An OPF was prep. by a reaction between ***PEG*** and ***fumarate*** chloride. The prep. OPF was crosslinked by radical polymer. initiated by Photoinradh. and chem. initiation. The crosslinked OPF gels exhibited typical properties of hydrogels, which were dependent on the mol. wt. of ***PEG*** and the reactant ratio between ***fumarate*** - ***PEG*** -

L2 ANSWER 9 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 2001:36321 CAPLUS

TI Modification of Oligo(poly(ethylene glycol) fumarate
 Peptide for the Preparation of Functionalized Peptides
 Jo, Seongbong; Shin, Heungsoo; Mikos, Antonios G.
 Department of Bioengineering, Rice University, Houston, USA
 CODEN: BOMAF6; ISSN: 1525-7797
 Biomacromolecules (2001), 2 (1), 255-261

SC PB American Chemical Society

DT English

LA English

AB A novel macromer, oligo(***poly*** (***ethylidene glycol***) ***fumarate***) (OPF) was synthesized by the ***poly*** (***ethylene*** ***glycol***) ***fumarate*** method. The OPF (1.0K) and ***PEG*** (***PEG*** 1.0K) were known to modulate cellular functions, Gly-Arg-Gly-activated with 4-nitrophenyl chloroformate (NPC). GPGD modification in 0.1 M sodium bicarbonate buffer, determined by NMR measurements. The OPF 1.0K and the GPGD were ***cross*** - ***cross*** - ***linked*** with a polyester poly(propylene ***fumarate***) (PPF) - ***cross*** - ***linked***. PPF was characterized by FT-IR spectroscopy and contact angle measurement. The contact angle of water on the ***cross*** - ***linked*** decreased with the incorporation of OPF 1.0K and with GPGD. The results suggest that the OPF macro-pore of functionalized networks incorporating consequences.

RE.GNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 10 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 2001:867224 CAPLUS

TI Studies on poly(propylene fumarate-co-ethylene glycol)

AU Jayabalaji, Muthu; Thomas, Vinoy; Sreelatha, P. K.
CS Polymer Division, Biomedical Technology Wing, Sree Chitra Tirumalai
Institute for Medical Sciences and Technology, Thiruvananthapuram, 12,
India

SO Bio-Medical Materials and Engineering (2000), 10(2), 57-71

PB CODEN: BMENEQ; ISSN: 0959-2989

PB IOS Press

DT Journal

LA English

AB Poly(propylene ***fumarate*** -co-ethylene glycol) random (PPF-1) and block (PPF-2) copolymer oligomers were prep. Comparing the setting characteristics of PPF-1 and PPF-2 with comonomer n-vinyl pyrrolidone (n-VP) and swelling characteristics of cured PPF-1 and PPF-2, lower setting temp. and setting time was obsd. with the former leading to higher swelling coeff. and lower ***cross*** d. in the cured PPF-1. Due to the high swelling coeff. and low setting exothermic temp. assoc. with PPF-1, the bone cement was prep. from PPF-1, n-VP and hydroxyapatite (HAP). The in vitro degrad. studies reveal lesser wt. loss and deformation of PPF-1/n-VP/HAP based cured resin in Ringer's soln. and phosphate buffered saline in comparison with that of PPF-1/n-VP cured resin. Though the bone cement composite has adequate mech. properties with HAP, the compressive strength and modulus of the composite aged in Ringer's soln. and PBS reduced appreciably which is due to extensive hydration and plasticization by the ***PEG*** unit. However, the bone-binding and bond strength of the bone cement dtdt. as the load for sepn. of bones was found to be similar to that of fast setting calcium phosphate - atelocollagen (5%) bone cement. The bone cement PPF-1/n-VP/HAP could be used as scaffold for correcting the bone defects.

RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE IN THE RE FORMAT

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 11 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1995:538715 CAPLUS

TI Preparation and characterization of poly(propylene fumarate-co-ethylene glycol) hydrogels

AU Sugra, Laura J.; Kao, Edmund Y.; Palombo, Laurie L.; Krishnan, Ravi S.; Widmer, Markus S.; Mikos, Antonios G.

CS Cox Laboratory for Biomedical Engineering, Institute of Biosciences and, Rice University, Houston, TX, 77251-1892, USA

SO Polymers for Tissue Engineering (1998), 99-112. Editor(s): Shiochiri, Molly S.; Hubbell, Jeffrey A. Publisher: VSP, Utrecht, Neth.

CODEN: GBAEAB

DT Conference

LA English

AB The prep. and bulk characterization of a ***cross*** - ***linked*** poly(propylene ***fumarate*** -co-ethylene glycol) hydrogel are described. Eight block copolymer formulations were made by varying four different design parameters including ***poly*** (***ethylene*** ***glycol***) (***PEG***) mol. wt., Poly(propylene ***fumarate*** ***glycol***) (PPF) mol. wt., copolymer mol. wt., and ***PEG*** /PPF ratio. Two different crosslinking formulations were also tested, one with a crosslinking monomer and one without. The extent of the crosslinking reaction and degree of swelling in H_2O soln. were detd. for copolymer formulations made without a crosslinking monomer. The values of mol. wt. between ***cross*** ***link*** ranged from 3000+-120 to 1190+-320 as dtdt. From swelling data (n = 3). The equil. vol. swelling

ratios varied from 1.5+-0.1 to 3.0+-0.1. This ratio increased with increasing ***PEG*** content in the copolymer and decreased with increasing PPF mol. wt. The complex dynamic elastic modulus ranged from 0.9+-0.2 to 13.1+-1.1 MPa for the formulations with the crosslinking monomer, N-vinyl Pyrrolidone (n = 3). The ultimate tensile stresses of the formulations made with the crosslinking agent ranged from 0.15+-0.03 to 1.44+-1.06 MPa. The tensile modulus ranged from 1.11+-0.20 to 20.66+-2.42 MPa (n = 5). All of the mech. properties increased with increasing PPF mol. wt. and decreased with increasing ***PEG*** content in the copolymer. The phys. properties of the hydrogels can be tailored to specific applications by altering their compn.

RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 12 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1997:423635 CAPLUS

DN 127:15688
TI Synthesis and Characterization of a Block Copolymer Consisting of Poly(propylene fumarate) and Poly(ethylene glycol)

AU Sugra, Laura J.; Payne, Richard G.; Yaszemski, Michael J.; Allemayr, Lawrence B.; Mikos, Antonios G.

CS Cox Laboratory for Biomedical Engineering, Institute of Biosciences and Bioengineering, Rice University, Houston, TX, 77251-1892, USA
Macromolecules (1997), 30(15), 4318-4323
CODEN: MAMOBX; ISSN: 0024-9297

LA American Chemical Society

AB Poly(propylene ***fumarate*** -co-ethylene glycol) has been synthesized in an effort to develop a ***cross*** - ***linked*** biomaterials for use as a vascular implant. This copolymer has been fabricated in a block configuration with two to three homopolymer units in the block configuration reaction between the linear Polyester and the terminal hydroxyl functionalities of the ***poly*** (***ethylene*** ***glycol***) (***PEG***). A no. of design parameters including the mol. wts. of the two homopolymers, the copolymer reaction time, and the wt. percent of ***PEG*** were varied in order to assess their effect on the properties of the resulting copolymer. This material has been characterized in terms of structure and comon. as well as thermal, properties and solv. behavior. All formulations of the copolymer exhibited a single glass transition temp. and a single melting temp., with a degree of crystallinity which was dependent upon the relative amt. of ***PEG***. The copolymers were water sol. and demonstrated enhanced solubilities in org. solvents compared to the parent homopolymers.

RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE IN THE RE FORMAT

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 13 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1995:125401 CAPLUS

TI Crystallographic studies on crosslinked hemoglobin
AU Fernandez, E. J.; Zhao, J.; Olsen, K. W.
CS Dept. Chemistry, Loyola Univ., Chicago, IL, 60626, USA
SO Book of Abstracts, 210th ACS National Meeting, Chicago, IL, August 20-24
1995, Issue Pt. 2, PHYS-203 Publisher: American Chemical Society, Washington, D. C.
CODEN: 6IXGRC

DT Conference: Meeting Abstract

LA English diffraction data were collected on two chem. crosslinked Hbs. The first was crosslinked between the two Lys- α -alpha.99 (alpha.99HbA) with bis(3,5 dibromosalicyl) ***fumarate*** (DBSF). Crystals were grown under high salt, deoxy conditions. The structure was solved by difference Fourier methods and refined to an R-factor of 17.6%. There were no major displacements from native deoxy HbA. The only residues affected, besides the Lys- α .99s, were the two Glu- β ea.101s and Arg- β ea.104s. Like the Lys- α .99, these residues into the central cavity. The second ***crosslink*** was put between the Lys- β ea.82 (beta.82HbA) using DBSF. Crosslinking was done under oxy conditions. Crystals were grown under deoxy conditions from ***PEG*** -6000 (P21, a=65, 3, b=96, 0, c=101.5 and β =-101.5.degree., 2, tetratetra. per asym. unit). The structure was solved by mcl. replacement using X-PLOR. The R-factor was 17.2%. While the structure remained largely similar to deoxy HbA, there were portions that had moved towards the liganded oxy HbA. There were also parts of beta.82HbA that were unlike both the deoxy and the oxy HbA structures and these were explained to be a consequence of the ***cross*** - ***link*** between the β -ea-chains.

ANSWER 14 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
DN 12316531
TI Effects of polymerized on the oxygen carrying and redox properties of desipirin cross-linked hemoglobin
AU Rogers, Melanie S.; Brockner-Ryan, Beth; Cashon, Robert E.; Alayash, Abdu I.
Center for Biologics Evaluation and Research, Food and Drug Administration, 8800 Rockville Pike, Bethesda, MD, 20892, USA
SO Biochimica et Biophysica Acta (1995), 1248(2), 135-42
PB Elsevier
DT English
AB Human Hb site specifically ***cross*** - ***linked*** with bis(3,5-dibromosalicyl) ***fumarate*** results in a low oxygen affinity Hb-based red cell substitute. (alpha.-DBBF) Polym. of alpha.-DBBF by bis(maleoniglycamide) Polyethylene glycol (BMAA- ***PEG***) yields poly .alpha.-DBBF which offers the added benefits of reduced renal clearance and increased retention in the vascular circulation. Oxygen equil. curves for poly .alpha.-DBBF are slightly left-shifted (higher O2 affinity) compared to those of alpha.-DBBF with a diminished cooperativity and a reduced Bohr effect. In rapid mixing expts. (oxygen dissocicn. and carbon monoxide binding), poly .alpha.-DBBF exhibits a several fold increase in the overall rate of deoxygenation and carbon monoxide binding kinetics over its ***cross*** - ***linked*** counterpart. The rate of nitric oxide binding to the oxidized form of poly .alpha.-DBBF shows little or no change compared to the intramolecularly ***cross*** - ***linked*** deriv. The redn. of cyanomet poly .alpha.-DBBF by dithionite is several fold faster than that of HbAO and .alpha.-DBBF whereas the slow subsequent cyanide dissociation of the ferrous iron remained unchanged among all proteins. The propensity of Poly .alpha.-DBBF for auto-oxidation is slightly enhanced over .alpha.-DBBF whereas the extent of oxidative modification by hydrogen peroxide is very similar. Polym. appears to selectively modify 1-gand interactions and redox kinetics of the tetrameric ***cross*** - ***linked*** form which reflects a possibly more open heme pocket. The data suggests that

changes in oxygenation properties of Hb brought about by a given modification are not necessarily predictive or other functional changes.

ANSWER 15 OF 15 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1961-78942 CAPLUS
DN 55:79982
OREF 55:14962i,14963a-h
TI Laminated plastics on a fiber-glass base. Effect of monomer content on the properties of unsaturated polyester resins and glass plastics with polyester binders
LI, P. Z.; Mikhailova, Z. V.; Sedov, L. N.
Plasticheskii Massy (1960), (No. 8), 7-16
CODEN: PIMSAI; ISSN: 0554-2901
Journal
LA Unavailable
AB cf. CA 55, 12861h. The effect of the concn. of solns. of unsatd. polyester resins in styrene on the properties of these solns. in their original and cured states and on their curing rates in the presence of peroxide initiators and Co naphthenate was studied. The mechanism of curing polyester-styrene resins, the optimum styrene content in the solns. for best phys.-chem. and mech. properties of cured resins, and the relation of mech. and elec. insulating properties of glass toktolite to polyester binder concn. were investigated. Polyesters were gelatinized at 20.degree. in the presence or 3% isopropylbenzene hydroperoxide and 8% accelerator for poly(diglycidylene glycol maleate ***phthalate***) (I) and poly(diglycidylene glycol maleate diphenolate) (III), 6% hydroperoxide and 8% accelerator for poly(glycol maleate (III)) ***glycol maleate*** (II), ***ethylene*** ***glycol*** maleate ***phthalate*** (IV), ***poly*** (***glycol*** maleate adipate) (V), and
and
Polydiethyleneglycol maleate adipate (VI), 3% of a soln. of 50% MeCOB Peroxide and 3% accelerator for poly(pentaerythritol dichlorohydrin maleate ***phthalate***) (VII) and poly(pentaerythritol dichlorohydrin maleate adipate) (VIII). Analyses of Polyesters were as follows (Product; acid no.; d.): I: 42.6, 1.33; II: 44.6, 1.39; III: 21.1, 1.29; (IV) 32.3, 1.34; V 32.0, 1.30; VI 26.8, 1.32; VII 37.0, 1.66; VIII 42.5, 1.61. Cured resins and fiber-glass were aged for 1 month before the expts. The relation of sp. gr. of solns. of unsatd. polyester resins in styrene to temp. can be expressed by $dt_2 = dt_1 - 0.0076 (t_2 - t_1)$, where dt_1 is the d. at temp. t_1 and dt_2 is the d. at temp. t_2 . The relation of viscosity of these solns. to temp. is given by $\eta_{ta} = a/tb$, where η_{ta} is the coeff. of viscosity in cp., t is temp. .degree.C., and a and b are cons. The basic process involved in curing was copolymerization of the polyester with styrene. The rate of gelatinization with styrene content >28% depended mainly on the rate of formation of ***cross*** - ***link*** ties which increased with an increase in the amt. of styrene. The d. of cured solns. was a linear function of the monomer content of the soln. Shrinkage of styrene solns. of polyesters on curing was proportional to styrene content only in the intervals 15-20 and 45-50%. The optimum styrene content in solns. to obtain greatest heat resistance was 1 mol. monomer for 1 ethylene bond of polyester for esters without ***phthalic*** or adipic acids, a 10-20% excess of this amt. for those conts. ***phthalate*** groups, double the calcd. amt. for the diphenolate, and 2.4 times the calcd. amt. for dichlorohydrin pentaerythritol esters. The relation of hardness to original soln. concn. corresponded to the relation with heat resistance, and depended both on the no. of ***cross*** ***links*** and on the presence of aromatic

and other components in the copolymer. Extrn. of cured products with acetone in a Soxhlet app. for 12 hrs. showed that the min. amt. was extd. at the same styrene content as max. heat resistance. A study of I at various concns. showed that hygroscopicity decreased with an increase in styrene content in the original compn. Compression strength and the modulus of elasticity of cured solns. of I and VII increased with an increase in the styrene content. Glass textile based on styrene solns. of I and glass cloth showed the following elec. characteristics (property: value at 1.6%, 25%, and 38% styrene content): dielec. const. at 50 cycles/sec., 4.9, 4.4, - dielec. const. at 106 cycles/sec., 5.2, 4.8, 4.6; power factor at 50 cycles/sec., 0.029, 0.015, 0.014; power factor at 106 cycles/sec., 0.021, 0.015, 0.014; surface resistivity (ohms), 5.3 times, 1014, 5.3 times, 1014, 5.3 times, 1014; dielec. strength parallel (kv./mm.), 13.7, 14.1, 17.9. The textile showed max. tensile strength by bending and compression, modulus of elasticity, and heat resistance at a 38% styrene content. Thoroughness of impregnation of fiber glass fillers influenced mech. and optical properties, H₂O-resistance, and chem. stability; the greater the monomer content, the lower the viscosity, and the more complete the impregnation.

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